

REMARKS

In an Office Action mailed on March 29, 2004, claims 1, 3 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by Middlehurst; claims 2 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Middlehurst in view of Woychik and Creswick; claims 6, 9-12, 14, 31-32 and 34-36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Middlehurst in view of Dranchak; claims 8, 13, 33 and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Middlehurst in view of Dranchak and further in view of Dell; claims 15-16 and 18-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dell in view of Pope; claims 17, 20-24, 39 and 41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dell in view of Pope and further in view of Volz; and claims 25-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dell in view of Dranchak. Claims 31-34 have been cancelled, thereby rendering the § 103 rejections of these claims moot. Newly added claims 42-48 are patentable over the cited art. The §§ 102 and 103 rejections are discussed below.

Rejections of Claims 1-5:

As amended, the circuit board of independent claim 1 includes electrical contacts that releasably mate with contact springs of a slot connector in response to the substrate being inserted into a slot of the slot connector.

Contrary to the limitations of amended independent claim 1, Middlehurst discloses a circuit board 38 that is connected to a female connector assembly 32. As the Examiner points out, the circuit board 38 includes various traces, such as the traces 46a and 46b. The traces 46a and 46b, however, are not electrical contacts that releasably mate with contact springs of a slot connector. Instead, the traces are mere circuit board traces that connect up to the connector 32 via solder connections, for example. However, there is no teaching or suggestion in Middlehurst of a circuit board that has electrical contacts to releasably mate with contact springs of a slot connector. Therefore, for at least this reason, Middlehurst fails to disclose all of the limitations of independent claim 1.

Claims 2-5 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, withdrawal of the §§ 102 and 103 rejections of claims 1-5 is requested.

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Rejections of Claims 6 and 8-10:

As amended, the circuit board of independent claim 6 includes circuitry and a substrate that supports the circuitry. The substrate has a contact edge to be inserted into a slot of a slot connector housing assembly. The substrate has an edge profile that is engaged by the connector housing assembly inside the slot in response to the substrate being inserted into the slot to resist removal of the circuit board from the slot connector housing assembly.

The Examiner rejects independent claim 6 under 35 U.S.C. § 103(a) in view of the combination of Middlehurst and Dranchak. As acknowledged by the Examiner, Middlehurst fails to disclose an edge profile that is engaged by a connector housing assembly. Therefore, for purposes of the § 103 rejection, the Examiner relies on the disclosure of Dranchak. However, Dranchak discloses a carriage mechanism in which a circuit board 13 is inserted into a connector assembly 10. In response to rotation of Dranchak's rotational arm 67, the circuit board 13 undergoes a linear movement toward the arm to force the slot 109 into the tab 111. However, this sequence does not occur in response to the circuit card 13 being inserted into the connector assembly. Thus, Dranchak fails to teach or suggest a substrate of a circuit board that has an edge profile that is engaged by a connector housing assembly inside a slot of the assembly *in response to* the substrate being inserted into the slot. Therefore, for at least this reason, Dranchak, and thus, the combination of Dranchak and Middlehurst, fails to teach or suggest all of the limitations of claim 6.

Claims 8-10 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, withdrawal of the § 103 rejections of claims 6 and 8-10 is requested.

Rejections of Claims 11-14:

As amended, the method of independent claim 11 includes forming an edge profile in a substrate to engage a slot connector housing assembly inside a slot of the slot connector housing assembly in response to the substrate being inserted into the slot to resist removal of the circuit board from the slot connector housing assembly.

For at least the reasons set forth above in the discussion of independent claim 6, the combination of Middlehurst and Dranchak fails to teach or suggest all claim limitations. More specifically, neither references teaches nor suggests forming the edge profile set forth in

claim 11. Therefore, for at least this reason, withdrawal of the § 103 rejection of independent claim 11 is requested.

Claims 12-14 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 15-17:

As pointed out in previous replies, the Examiner's rejection of claim 15 under § 103 is clearly improper. As all claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03; *In re Wilson*, 165 U.S.P.Q. 494, 496 (CCPA 1970) (stating "all words in a claim must be considered in judging the patentability of that claim against the prior art").

Claims 16-17 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 18-20:

As pointed out in previous replies, the Examiner's rejection of claim 15 under § 103 is clearly improper. As all claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03; *In re Wilson*, 165 U.S.P.Q. 494, 496 (CCPA 1970) (stating "all words in a claim must be considered in judging the patentability of that claim against the prior art").

Claims 19-20 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 21-24:

The method of independent claim 21 includes providing a slot connector to receive a circuit board and forming fins on the slot connector to conduct heat away from circuitry of the circuit board.

The Examiner rejects independent claim 21 under § 103 in view of the combination of Dell, Pope and Volz. In particular, the Examiner relies on Volz's disclosure of a housing 10. However, the housing 10 is a heat sink, not a slot connector housing. In short, the Examiner fails to show where the prior art contains the alleged suggestion or motivation to modify either Dell and/or Pope to form fins on a slot connector. Instead, the Examiner, *having knowledge of the claimed invention*, uses the hindsight gleaned from the current application to

modify Dell and Pope in view of Volz to derive the claimed invention. This, however, is improper, as the Examiner must show where the prior art contains the alleged suggestion or motivation for the combination of references to derive the claimed invention, *without having knowledge of the invention*. Thus, withdrawal of the § 103(a) rejection of independent claim 21 is requested.

Claims 22-24 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 25-30:

As amended, the slot connector of independent claim 25 includes a retention mechanism to engage an edge profile of a circuit board inside of slot to secure the circuit board to a slot connector in response to the circuit board being inserted into the slot.

Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Dell in view of Dranchak. As acknowledged by the Examiner, Dell fails to teach a retention mechanism. Thus, the Examiner relies on the disclosure of Dranchak. See discussion of claim 6 above. In particular, Dranchak fails to or suggest a retention mechanism to engage an edge profile of a circuit board in response to the circuit being inserted into a slot of a slot connector. Thus, for at least this reason, the combination of Dell and Dranchak fails to teach or suggest all claim limitations. Therefore, withdrawal of the § 103(a) rejection of claim 25 is requested.

Claims 26-29 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 35-37:

The method of independent claim 35 includes forming an edge profile in a substrate to engage a slot connector housing assembly inside a slot of the slot connector housing assembly in response to the substrate being inserted into the slot.

The Examiner rejects independent claim 35 under 35 U.S.C. § 103(a) in view of the combination of Middlehurst and Dranchak. See discussion of claim 6 above. In particular, neither Middlehurst nor Dranchak teaches or suggests the forming independent claim 35. Thus, for at least this reason, withdrawal of the § 103(a) rejection of independent claim 35 is requested.

Claims 36 and 37 are patentable for at least the reason that these claims depend from an allowable claim. Thus, withdrawal of the § 103(a) rejections of claims 35-37 is requested.

Rejections of Claims 39-41:

The apparatus of claim 39 includes a housing to form a slot to receive a circuit board and fins that are thermally coupled to the housing to conduct heat away from circuitry of the circuit board.

The Examiner rejects independent claim 39 under 35 U.S.C. § 103(a) in view of the combination of Dell, Pope and Volz. See discussion of claim 18 above. In particular, the Examiner combines Dell and Pope to derive the claimed invention based on the hindsight gleaned from the current application, without showing where the prior art contains the alleged suggestion or motivation for the proposed combination of Dell and Pope. This, however, is improper, as the Examiner must show that one skilled in the art, *without knowledge of the claimed invention*, would have combined Dell and Pope to derive the claimed invention. Without this showing, a *prima facie* case of obviousness has not been established for independent claim 39. Thus, withdrawal of the § 103(a) rejection of independent claim 39 is requested.

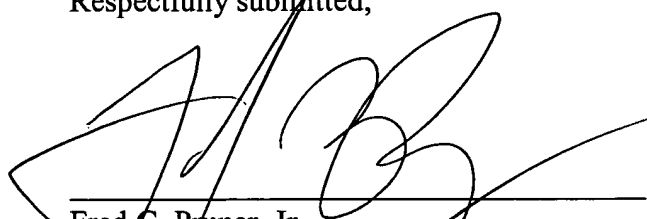
Claims 40 and 41 are patentable for at least the reason that these claims depend from an allowable claim.

CONCLUSION

In view of the foregoing, withdrawal of the §§ 102 and 103 rejections and a favorable action in the form a Notice of Allowance are requested. The Commissioner is authorized to charge any additional fees, or credit any overpayment to Deposit Account No. 20-1504 (ITL.0519US).

Respectfully submitted,

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